

Journal of Plant Research

Formerly THE BOTANICAL MAGAZINE, TOKYO

Vol. 111 (1998)

Numbers 1101–1104, Pages 1–604

Editor-in-Chief

Masamitsu WADA: Department of Biology, Faculty of Science, Tokyo Metropolitan University, Minami-Osawa, Hachioji, Tokyo, 192-0397 Japan

Editors

Naoki KACHI: Department of Biology, Faculty of Science, Tokyo Metropolitan University, Minami-Osawa, Tokyo, 192-0397 Japan

Yoshibumi KOMEDA: Division of Biological Sciences, Graduate School of Science, Hokkaido University, Kita-10, Nishi-8, Kita-ku, Sapporo, Hokkaido, 060-0810 Japan

Noriaki MURAKAMI: Department of Botany, Graduate School of Science, Kyoto University, Kitashirakawa-Oiwake-cho, Sakyou-ku, Kyoto, 606-8502 Japan

Editorial Board

Frank W EWERS Michigan State University

Ikuko HARA-NISHIMURA National Institute for Basic Biology

Mitsuyasu HASEBE National Institute for Basic Biology

Christopher HAUFLE University of Kansas

Takeo HORIGUCHI Hokkaido University

Mike J HUTCHINGS University of Sussex

Mari IWAYA-INOUE Kyushu University

Hironao KATAOKA Tohoku University

Takayoshi KOIKE Hokkaido University

J Clark LAGARIAS University of California

Masayuki MAKI Fukuoka University of Education

Akira NAGATANI Kyoto University

Eric T NILSEN Virginia Polytechnic Institute and State University

Harufumi NISHIDA Chuo University

Eisho NISHINO Chiba University

Kazuhiko NISHITANI Tohoku University

Jeremy ROBERTS University of Nottingham

Satoki SAKAI Tohoku University

Shingo TAKAGI Osaka University

Masamichi TAKAHASHI Kagawa University

Masayuki TAKAMIYA Kumamoto University

Akio TAKENAKA National Institute for Environmental Studies


Ichiro TANAKA Yokohama City University

Izumi WASHITANI University of Tsukuba

Yasuyuki WATANO Kanazawa University

Susan M WICK University of Minnesota

The Botanical Society of Japan



Digitized by the Internet Archive
in 2023 with funding from
Kahle/Austin Foundation

CONTENTS

Journal of Plant Research

(Formerly : THE BOTANICAL MAGAZINE, TOKYO)

Vol. 111

Number 1101, March 1998

MINIREVIEW

- Yamauchi, D. and Minamikawa, T. : Improvement of the Nutritional Quality of Legume Seed Storage Proteins by Molecular Breeding 1

ORIGINAL ARTICLES

- Tani, N., Tomaru, N., Tsumura, Y., Araki, M. and Ohba, K. : Genetic Structure within a Japanese Stone Pine (*Pinus pumila* Regel) Population on Mt. Aino-Dake in Central Honshu, Japan 7
- Chang, C.-S., Bongarten, B. and Hamrick, J. : Genetic Structure of Natural Populations of Black Locust (*Robinia pseudoacacia* L.) at Coweeta, North Carolina 17
- Ronse Decraene, L.P., Smets, E.F. and Vanvinckenroye, P. : Pseudodiplostemony, and Its Implications for the Evolution of the Androecium in the Caryophyllaceae 25
- Saito, C., Fujie, M., Sakai, A., Kuroiwa, H. and Kuroiwa, T. : Detection and Quantification of rRNA by High-Resolution *in situ* Hybridization in Pollen Grains 45
- Wada, M., Nozue, K. and Kadota, A. : Cytoskeletal Pattern Changes during Branch Formation in a Centrifuged *Adiantum* Protonema 53
- Park, S.-W., Kahng, H.-Y., Kim, I.-J., Park, J.-O. and Chung, W.-I. : Molecular Cloning and Characterization of Small and Large Subunits of ADP-Glucose Pyrophosphorylase from Oriental Melon 59
- Guerra, M.P. and Handro, W. : Somatic Embryogenesis and Plant Regeneration in Different Organs of *Euterpe edulis* Mart. (Palmae) : Control and Structural Features 65
- Raju, M.V.S. and Steeves, T.A. : Growth, Anatomy and Morphology of the Mesocotyl and the Growth of Appendages of the Wild Oat (*Avena fatua* L.) Seedling 73

SHORT COMMUNICATIONS

- Kusumi, J. and Iba, K. : Characterization of a Nonsense Mutation in *FAD7*, the Gene Which Encodes ω -3 Desaturase in *Arabidopsis thaliana* 87
- Iijima, M., Aiba, K., Tanaka, Y. and Urushihara, H. : Expression of Starvation-Induced Genes in Zygotes of *Dictyostelium discoideum* 93
- Takahama, U. and Yoshitama, K. : Hydroxycinnamic Acid Esters Enhance Peroxidase-Dependent Oxidation of 3,4-Dihydroxyphenylalanine. Differences in the Enhancement among the Esters 97

INVITED ARTICLES

- Takahashi, Y. : Chloroplast-Encoded Small Subunits of the Three Multiprotein Complexes in Photosynthetic Electron Transport 101
- Tsukaya, H. : Genetic Evidence for Polarities That Regulate Leaf Morphogenesis 113
- Sonoike, K. : Various Aspects of Inhibition of Photosynthesis under Light/Chilling Stress : "Photoinhibition at Chilling Temperatures" versus "Chilling Damage in the Light" 121

JPR SYMPOSIUM

- Sakurai, N. : Dynamism of Apoplast 131
- Sakurai, N. : Dynamic Function and Regulation of Apoplast in the Plant Body 133
- Shieh, M. W. and Cosgrove, D.J. : Expansins 149
- Nishitani, K. : Construction and Restructuring of the Cellulose-Xyloglucan Framework in the Apoplast as Mediated by the Xyloglucan-Related Protein Family- A Hypothetical Scheme 159
- Hoson, T. : Apoplast as the Site of Response of Environmental Signals 167
- Matoh, T. and Kobayashi, M. : Boron and Calcium, Essential Inorganic Constituents of Pectic Polysaccharides in Higher Plant Cell Walls 179

Number 1102, June 1998

ORIGINAL ARTICLES

- Molina, M.C., Bajon, C., Sauvanet, A., Robert, D. and Vicente, C. : Detection of Polysaccharides and Ultrastructural Modification of the Photobiont Cell Wall Produced by Two Arginase Isolectins from *Xanthoria parietina* .. 191
- Miyake, T., Yamaoka, R. and Yahara, T. : Floral Scents of Hawkmoth-Pollinated Flowers in Japan... 199
- Lei, T.T. and Koike, T. : Some Observations of Phenology and Ecophysiology of *Daphne kamtschatica* Maxim. var. *jezoensis* (Maxim.) Ohwi, a Shade Deciduous Shrub, in the Forest of Northern Japan .. 207
- Ogata, J., Teramoto, S. and Yoshitama, K. : Isolation and Characterization of UDP-Glucose : Cyanidin 3-O-glucosyltransferase from the Flower Buds of *Senecio* × *hybridus* .. 213
- Ito, M., Soejima, A. and Watanabe, K. : Phylogenetic Relationships of Japanese *Aster* (Asteraceae, Astereae) sensu lato Based on Chloroplast-DNA Restriction Site Mutations .. 217
- Ren, Y., Xiao, Y.-P. and Hu, Z.-H. : The Morphological Nature of the Open Dichotomous Leaf Venation of *Kingdonia* and *Circaeaster* and Its Systematic Implication .. 225

JPR Symposium

- Iwabuchi, M. : Frontier of Plant Biology .. 231
- Meyerowitz, E.M. : Genetic and Molecular Mechanisms of Pattern Formation in *Arabidopsis* Flower Development .. 233
- Machida, Y., Nakashima, M., Morikiyo, K., Banno, H., Ishikawa, M., Soyano, T. and Nishihama, R. : MAPKKK-Related Protein Kinase NPK1: Regulation of the M Phase of Plant Cell Cycle .. 243
- Meshi, T., Taoka, K. and Iwabuchi, M. : S Phase-Specific Expression of Plant Histone Genes .. 247
- Fukuda, H., Watanabe, Y., Kuriyama, H., Aoyagi, S., Sugiyama, M., Yamamoto, R., Demura, T. and Minami, A. : Programming of Cell Death during Xylogenesis .. 253
- Uchimiya, H., Anai, T., Aspuria, E.T., Matsui, M., Nakano, A. and Ueda, T. : The Biological Roles of Small GTPases and Interacting Proteins in Plants .. 257
- Kakimoto, T. : Genes Involved in Cytokinin Signal Transduction .. 261
- Cashmore, A.R. : The Cryptochrome Family of Blue/UV-A Photoreceptors .. 267
- Onouchi, H. and Coupland, G. : The Regulation of Flowering Time of *Arabidopsis* in Response to Daylength .. 271
- Araki, T., Kobayashi, Y., Kaya, H. and Iwabuchi, M. : The Flowering-Time Gene *FT* and Regulation of Flowering in *Arabidopsis* .. 277
- Komeda, Y., Takahashi, T. and Hanzawa, Y. : Development of Inflorescences in *Arabidopsis thaliana* .. 283
- Kato, H., Honma, T. and Goto, K. : *CENTRORADIALIS*/*TERMINAL FLOWER 1* Gene Homolog Is Conserved in *N. tabacum*, a Determinate Inflorescence Plant.. 289
- Alvarez, J. and Smyth, D.R. : Genetic Pathways Controlling Carpel Development in *Arabidopsis thaliana* .. 295
- Zinkl, G.M., Wilhelmi, L.K. and Preuss, D. : Sticking Together: Cell Adhesion Interactions in *Arabidopsis* Reproduction .. 299
- Pogany, J.A., Simon, E.J., Katzman, R.B., De Guzman, B.M., Yu, L.P., Trotochaud, A.E. and Clark, S.E. : Identifying Novel Regulators of Shoot Meristem Development... 307
- Okada, K., Wada, T., Oyama, T., Ohta, M., Tachibana, T., Gohda, K. and Ishiguro, S. : Regulatory Systems of Root Patterning .. 315
- Herbers, K. and Sonnewald, U. : Altered Gene Expression Brought about by Inter- and Intracellularly Formed Hexoses and Its Possible Implications for Plant-Pathogen Interactions .. 323
- Nishimura, M., Hayashi, M., Toriyama, K., Kato, A., Mano, S., Yamaguchi, K., Kondo, M. and Hayashi, H. : Microbody Defective Mutants of *Arabidopsis* .. 329
- Matsuoka, M., Nomura, M., Agarie, S., Miyao-Tokutomi, M. and Ku, M.S.B. : Evolution of C4 Photosynthetic Genes and Overexpression of Maize C4 Genes in Rice... 333
- Meskiene, I., Ligterink, W., Bögre, L., Jonak, C., Kiegl, S., Balog, J., Eklöf, S., Ammerer, G. and Hirt, H. : The SAM Kinase Pathway : An Integrated Circuit for Stress Signaling in Plants .. 339
- Shinozaki, K., Yamaguchi-Shinozaki, K., Mizoguchi, T., Urao, T., Katagiri, T., Nakashima, K., Abe, H., Ichimura, K., Liu, Q., Nanjyo, T., Uno, Y., Iuchi, S., Seki, M., Ito, T., Hirayama, T. and Mikami, K. : Molecular Responses to Water Stress in *Arabidopsis thaliana* .. 345
- Zhou, J., Tang, X., Frederick, R. and Martin, G. : Pathogen Recognition and Signal Transduction by the Pto Kinase .. 353
- Hayashi, H., Alia, Sakamoto, A., Nonaka, H., Chen, T.H.H. and Murata, N. : Enhanced Germination under High-Salt Conditions of Seeds of Transgenic *Arabidopsis* with a Bacterial Gene (*cod A*) for Choline Oxidase .. 357

Number 1103, September 1998

MINIREVIEWS

- Yanagisawa, S.** : Transcription Factors in Plants : Physiological Functions and Regulation of Expression 363
- Nonami, H.** : Plant Water Relations and Control of Cell Elongation at Low Water Potentials 373
- Shibaike, H.** : Molecular Genetic Mapping and Plant Evolutionary Biology 383

ORIGINAL ARTICLES

- Wunsch, C. and Wada, M.** : Nuclear Recovery from Centrifugation-Caused Elongation : Involvement of the Microfilament System in the Nuclear Plasticity 389
- Wunsch, C., Kurachi, M., Kikumoto, M., Tashiro, H. and Wada, M.** : Detection of Intranuclear Forces by the Use of Laser Optics during the Recovery Process of Elongated Interphase Nuclei in Centrifuged Protonemal Cells of *Adiantum capillus-veneris* 399
- Oka, M., Ueda, J., Miyamoto, K. and Okada, K.** : Activities of Auxin Polar Transport in Inflorescence Axes of Flower Mutants of *Arabidopsis thaliana* : Relevance to Flower Formation and Growth 407
- Uno, Y., Urao, T., Yamaguchi-Shinozaki, K., Kanechi, M., Inagaki, N., Maekawa, S. and Shinozaki, K.** : Early Salt-Stress Effects on Expression of Genes for Aquaporin Homologues in the Halophyte Sea Aster (*Aster tripolium* L.) 411
- Hasegawa, Y., Nakamura, S., Kakizoe, S., Sato, M. and Nakamura, N.** : Immunocytochemical and Chemical Analyses of Golgi Vesicles Isolated from the Germinated Pollen of *Camellia japonica* 421
- Geiß, D., Senger, H. and Galland, P.** : Photoreception in *Euglena gracilis* : Fluence-Rate and Time Dependence of Photoaccumulation and Photodispersal 431
- Hasebe, M., Ando, T. and Iwatsuki, K.** : Intrageneric Relationships of Maple Trees Based on the Chloroplast DNA Restriction Fragment Length Polymorphisms 441
- Yamakawa, S., Sakuta, C., Matsubayashi, Y., Sakagami, Y., Kamada, H. and Satoh, S.** : The Promotive Effects of a Peptidyl Plant Growth Factor, Phytosulfokine- α , on the Formation of Adventitious Roots and Expression of a Gene for a Root-Specific Cystatin in Cucumber Hypocotyls 453

SHORT COMMUNICATION

- Mishio, M. and Kawakubo, N.** : Ramet Production by *Mallotus japonicus*, a Common Pioneer Tree in Temperate Japan 459

TECHNICAL NOTE

- Katembe, W.J., Edelman, R.E., Brinckmann, E. and Kiss, J.Z.** : The Development of Spaceflight Experiments with *Arabidopsis* as a Model System in Gravitropism Studies 463

Number 1104, December 1998

MINIREVIEWS

- Izuta, T.** : Ecophysiological Responses of Japanese Forest Tree Species to Ozone, Simulated Acid Rain and Soil Acidification 471
- Nishiuchi, T. and Iba, K.** : Roles of Plastid ω -3 Fatty Acid Desaturases in Defense Response of Higher Plants 481

ORIGINAL ARTICLES

- Takahama, U. and Oniki, T.** : 3,4-Dihydroxyphenylalanine is Oxidized by Phenoxyl Radicals of Hydroxycinnamic Acid Esters in Leaves of *Vicia faba* L. 487
- Cheng, X. and Murakami, N.** : Cytotaxonomic Study of Genus *Hymenasplenium* (Aspleniaceae) in Xishuangbanna, Southwestern China 495
- Yang, Y.-L. and Chen, S.-H.** : An Investigation of Airborne Pollen in Taipei City, Taiwan, 1993-1994 501
- Watanabe, K., Kobayashi, T. and Murata, J.** : Cytology and Systematics in Japanese *Arisaema* (Araceae) 509
- Abe, K., Takahashi, H. and Suge, H.** : Gravimorphism in Rice and Barley : Promotion of Leaf Elongation by Vertical Inversion in Agravitropically Growing Plants 523
- Akashi, T., Makishima, H. and Tanaka, K.** : Involvement of the Cytoskeleton in the Intracellular Distribution of Mannoproteins in Hyphal Cells of *Candida albicans* 531
- Satoh, S., Kuroha, T., Wakahoi, T. and Inouye, Y.** : Inhibition of the Formation of Adventitious Roots on Cucumber

Hypocotyls by the Fractions and Methoxybenzylgultamine from Xylem Sap of Squash Root	541
Nishihiro, J. and Washitani, I.: Effect of Population Spatial Structure on Pollination and Seed Set of a Clonal Distylous Plant, <i>Persicaria japonica</i> (Polygonaceae)	547
Yatabe, Y., Takamiya, M. and Murakami, N.: Variation in the <i>rbcL</i> Sequence of <i>Stegnogramma pozoi</i> subsp. <i>Mollissima</i> (Thelypteridaceae) in Japan	557
Venkatachalam, P., Geetha, N., Jayabalan-Saravanababu, N. and Sita, Lakshmi: <i>Agrobacterium</i> -Mediated Genetic Transformation of Groundnut (<i>Arachis hypogaea</i> L.): An Assessment of Factors Affecting Regeneration of Transgenic Plants	565
Ronse Decraene, L.P., Roels, P., Smets, E.F. and Backlund, A.: The Floral Development and Floral Anatomy of <i>Chrysosplenium alternifolium</i> , an Unusual Member of the Saxifragaceae	573

SHORT COMMUNICATIONS

Nakamura, T., Suzuki, T. and Kadono, Y.: A Comparative Study of Isoenzyme Patterns of <i>Hydrilla verticillata</i> (L.f.) Royle in Japan	581
Wada, M.: Branch Formation Induced by Microbeam Irradiation of <i>Adiantum</i> Protonemata	587
Wang, W.: Effect of End-of-Day Far-Red Light Exposures on Fertility Alteration and Flowering in Photoperiod-Sensitive Genic Male-Sterile Rice	591
Tsukaya, H.: Flowering Time of Two Saprophytic Plants, <i>Monotropa uniflora</i> L. and <i>Monotropastrum humile</i> (D. Don) Hara in Japan	595
Ashihara, H., Kato, M. and Chuang-xing, Y.: Biosynthesis and Metabolism of Purine Alkaloids in Leaves of Cocoa Tea (<i>Camellia ptilophylla</i>)	599

AUTHOR INDEX

Journal of Plant Research

(Formerly : THE BOTANICAL MAGAZINE, TOKYO)

Vol. 111

A		Fukuda, Hiroo	253	Kadota, Akeo	53
Abe, Hiroshi	345			Kahng, Hyung-Yeel	59
Abe, Kiyomi	523	G		Kakimoto, Tatsuo	261
Agarie, Sakae	333	Galland, Paul	431	Kakizoe, Sayuri	421
Aiba, Kazuhiro	93	Geetha, Natesan	571	Kamada, Hiroshi	453
Akashi, Tomohiro	531	Geiß, Dieter	431	Kanechi, Michio	411
Alia	357	Gohda, Kazuhito	315	Katagiri, Takeshi	345
Alvarez, John	295	Goto, Koji	289	Katembe, W. Jira	463
Ammerer, Gustav	339	Guerra, Miguel P.	65	Kato, Akira	329
Anai, Toyoaki	257			Kato, Hidetoshi	289
Ando, Toshio	441	H		Kato, Misako	599
Aoyagi, Shigemi	253	Hamrick, James	17	Katzman, Rebecca B.	307
Araki, Masayuki	7	Handro, Walter	65	Kawakubo, Nobumitsu	459
Araki, Takashi	277	Hanzawa, Yoshie	283	Kaya, Hidetaka	277
Ashihara, Hiroshi	599	Hasebe, Mitsuyasu	441	Kiegerl, Stefan	339
Aspuria, Evalour T.	257	Hasegawa, Yoshikazu	421	Kikumoto, Mahito	399
		Hayashi, Hidenori	357	Kim, In-Jung	59
B		Hayashi, Hiroshi	329	Kiss, John Z.	463
Backlund, A.	573	Hayashi, Makoto	329	Kobayashi, Masaru	179
Bajon, Catherine	191	Herbers, Karin	323	Kobayashi, Tomiki	509
Balog, Judit	339	Hirayama, Takashi	345	Kobayashi, Yasushi	277
Banno, Hiroharu	243	Hirt, Heribert	339	Koike, Takayoshi	207
Bögre, Laszlo	339	Honma, Takashi	289	Komeda, Yoshibumi	283
Bongarten, Bruce	17	Hoson, Takayuki	167	Kondo, Maki	329
Brinckmann, Enno	463	Hu, Zheng-Hai	225	Ku, Maurice S.B.	333
				Kurachi, Masashi	399
C		I		Kuriyama, Hideo	253
Cashmore, Anthony R.	267	Iba, Koh	87, 481	Kuroha, Takeshi	541
Chang, Chin-Sung	17	Ichimura, Kazuya	345	Kuroiwa, Haruko	45
Chen, Su-Hwa	501	Iijima, Miho	93	Kuroiwa, Tsuneyoshi	45
Chen, Tony H.H.	357	Inagaki, Noboru	411	Kusumi, Junko	87
Cheng, Xiao	495	Inouye, Yoshinobu	541		
Chung, Won-II	59	Ishiguro, Sumie	315	L	
Clark, Steven E.	307	Ishikawa, Masaki	243	Lei, Thomas T.	207
Cosgrove, Daniel J.	149	Ito, Motomi	217	Ligterink, Wilco	339
Coupland, George	271	Ito, Takuya	345	Liu, Quian	345
		Iuchi, Satoshi	345		
D		Iwabuchi, Masaki	247, 277	M	
De Guzman, Bernadette M.	307	Iwatsuki, Kunio	441	Machida, Yasunori	243
Demura, Taku	253	Izuta, Takeshi	471	Maekawa, Susumu	411
				Makishima, Hideki	531
E		J		Mano, Shoji	329
Edelmann, Richard E.	463	Jayabalan-Saravanababu,		Martin, Gregory	353
Eklöf, Staffan	339	Narayanasamipillai	565	Matoh, Toru	179
		Jonak, Claudia	339	Matsubayashi, Yoshikatsu	453
F				Matsui, Minami	257
Frederick, Reid	353	K		Matsuoka, Makoto	333
Fujie, Makoto	45	Kadono, Yasuro	581	Meshi, Tetsuo	247

Meskiene, Irute	339	R		Trotochaud, Amy E.	307
Meyerowitz, Elliot M.	233	Raju, M.V.S.	73	Tsukaya, Hirokazu	113, 595
Mikami, Koji	345	Ren, Yi	225	Tsumura, Yoshihiko	7
Minami, Atsushi	253	Robert, Daniel	191	U	
Minamikawa, Takao	1	Roels, P.	573	Uchimiya, Hirofumi	257
Mishio, Masako	459	Ronse Decraene, Louis P.	25, 573	Ueda, Junichi	407
Miyake, Takashi	199	S		Ueda, Takashi	257
Miyamoto, Kensuke	407	Saito, Chieko	45	Uno, Yuichi	345, 411
Miyao-Tokutomi, Mitsue	333	Sakagami, Youji	453	Urao, Takeshi	345, 411
Mizoguchi, Tsuyoshi	345	Sakai, Atsushi	45	Urushihara, Hideko	93
Molina, Maria del Carmen	191	Sakamoto, Atsushi	357	V	
Morikiyo, Kayoko	243	Sakurai, Naoki	131, 133	Vanvinckenroye, Peter	25
Murakami, Noriaki	495, 557	Sakuta, Chiyoko	453	Venkatachalam, Perumal	565
Murata, Jin	509	Sato, Masayuki	421	Vicente, Carlos	191
Murata, Norio	357	Satoh, Shinobu	453, 541	W	
N		Sauvanet, Anne	191	Wada, Masamitsu	53, 389, 399, 587
Nakamura, Norio	421	Seki, Motoaki	345	Wada, Takuji	315
Nakamura, Sumio	421	Senger, Horst	431	Wakahoi, Takashi	541
Nakamura, Toshiyuki	581	Shibaike, Hiroyuki	383	Wang, Wei	591
Nakano, Akihiko	257	Shieh, Mark W.	149	Washitani, Izumi	547
Nakashima, Kazuo	345	Shinozaki, Kazuo	345, 411	Watanabe, Kuniaki	217, 509
Nakashima, Marina	243	Simon, Ephraim J.	307	Watanabe, Yoriko	253
Nanjo, Tokihiko	345	Smets, Erik F.	25, 573	Wilhelmi, Laura K.	299
Nishihama, Ryuichi	243	Smyth, David R.	295	Wunsch, Christian	389, 399
Nishihiro, Jun	547	Soejima, Akiko	217	X	
Nishimura, Mikio	329	Sonnewald, Uwe	323	Xiao, Ya-Pin	225
Nishitani, Kazuhiko	159	Sonoike, Kintake	121	Y	
Nishiuchi, Takumi	481	Soyano, Takashi	243	Yahara, Tetsukazu	199
Nomura, Mika	333	Steeves, T.A.	73	Yamaguchi, Katsushi	329
Nonaka, Hideko	357	Suge, Hiroshi	523	Yamaguchi-Shinozaki, Kazuko	345, 411
Nonami, Hiroshi	373	Sugiyama, Munetaka	253	Yamakawa, Seiyei	453
Nozue, Kazunari	53	Suzuki, Takeshi	581	Yamamoto, Ryo	253
O		T		Yamaoka, Ryohei	199
Ogata, Jun	213	Tachibana, Tatsuhiko	315	Yamauchi, Daisuke	1
Ohba, Kihachiro	7	Takahama, Umeo	97, 487	Yanagisawa, Shuichi	363
Ohta, Mayumi	315	Takahashi, Hideyuki	523	Yang, Yueh-Lin	501
Oka, Mariko	407	Takahashi, Taku	283	Yatabe, Yoko	557
Okada, Kiyotaka	315, 407	Takahashi, Yuichiro	101	Ye, Chuang-Xing	599
Oniki, Takayuki	487	Takamiya, Masayuki	557	Yoshitama, Kunijiro	97, 213
Onouchi, Hitoshi	271	Tanaka, Kenji	531	Yu, Lita	307
Oyama, Tokitaka	315	Tanaka, Yoshimasa	93	Z	
P		Tang, Xiaoyan	353	Zhou, Jianmin	353
Park, Jeom-Ok	59	Tani, Naoki	7	Zinkl, Gregory M.	299
Park, Seong-Whan	59	Taoka, Ken-ichiro	247		
Pogany, Jeffrey A.	307	Tashiro, Hideo	399		
Preuss, Daphne	299	Teramoto, Susumu	213		
		Tomaru, Nobuhiro	7		
		Toriyama, Kanako	329		

INDEX OF KEY WORDS

Journal of Plant Research

(Formerly : THE BOTANICAL MAGAZINE, TOKYO)

Vol. 111

- | | | | | | |
|----------------------------------|--|---|--------------------|-----------------------------------|-------------------------|
| A | | Cell cycle | 243 | Differentiation | 307 |
| <i>Acaulis</i> 5 mutation | 283 | Cell division | 307 | Dioecy | 581 |
| <i>Acer</i> | 441 | Cell elongation | 373 | Disease resistance | 353 |
| Aceraceae | 441 | Cell enlargement | 149 | Disjunct distribution | 441 |
| Adaptation | 383 | Cell fate determination | 315 | DNase | 253 |
| Adapted cell | 411 | Cell growth | 149 | Dopa | 487 |
| <i>Adiantum</i> | 53, 587 | Cell polarity | 531 | Drought stress | 373 |
| ADP-glucose pyrophosphorylase | 59 | Cell signaling and adhesion | 299 | Dysploidy | 509 |
| Adventitious root | 453, 541 | Cell suspension culture | 411 | | |
| AGAMOUS | 295 | Cell wall | 133, 159, 167, 179 | E | |
| <i>Agrobacterium tumefaciens</i> | 565 | Cell wall loosening | 149 | Elicitor | 481 |
| Airborne pollen | 501 | Cell walls | 149 | Endoxyloglucan transferase (EXGT) | 159 |
| Allozymes | 17 | Cellulose | 159 | Environmental signal | 167 |
| Androecium | 25 | Centrifugation | 399 | Environmental stress | 121 |
| Apogamy | 495 | CENTRORADIALIS | 289 | ERECTA gene | 283 |
| Apoplast | 159, 167 | Chilling damage | 121 | ETTIN | 295 |
| Apoptosis | 253 | Chloroplast DNA | 217, 441 | <i>Euglena gracilis</i> | 431 |
| Ara | 257 | Chloroplast transformant | 101 | <i>Euterpe edulis</i> | 65 |
| <i>Arabidopsis</i> | 113, 267, 271, 277, 289, 295, 299, 329, 357, 463 | Choline oxidase | 357 | Evolutionary rate | 441 |
| <i>Arabidopsis thaliana</i> | 87, 233, 261, 283, 315, 345, 407 | Chromosome number | 495, 509 | Excitation pressure | 121 |
| Araceae | 509 | <i>Circaeaster</i> | 225 | Expansin | 149 |
| <i>Arachis hypogaea</i> | 565 | Cis-acting elements | 247 | Extracellular matrix | 299 |
| Arboreal pollen | 501 | Clonal growth | 459 | | |
| Arginase | 191 | Clonal structure | 17 | F | |
| <i>Arisaema</i> | 509 | Cocoa tea | 599 | Fatty acid β -oxidation | 329 |
| Aspleniaceae | 495 | Colleters | 579 | Fen Kinase | 353 |
| <i>Aster</i> | 217 | Compositae | 213 | Fern protonema | 389, 581 |
| Auxin polar transport | 407 | CONSTANS | 271 | Fern protonemata | 399 |
| <i>Avena fatua</i> | 73 | <i>Corymbosa</i> mutation | 283 | Fern spore | 501 |
| Avian seed dispersal | 7 | CRABS CLAW | 295 | Ferns and algae | 267 |
| | | Cucumber | 453 | Flavins | 431 |
| | | Cucumber (<i>Cucumis sativus</i>) | 541 | Floral anatomy | 573 |
| | | <i>Cucumis melo</i> var. <i>makuwa</i> Makino | 59 | Floral development | 25, 573 |
| | | Cystatin | 453 | Floral evocation | 277 |
| B | | Cysteine protease | 253 | Floral volatile compounds | 199 |
| Behavioral rhythms | 267 | Cytochrome <i>bef</i> | 101 | Flower buds | 213 |
| Black locust | 17 | Cytokinin | 261 | Flower development | 233 |
| Blue-light reception | 431 | Cytoskeleton | 53, 389, 531 | Flower formation | 407 |
| Boron | 179 | Cytotaxonomy | 495 | Flowering | 267, 271, 277, 591, 595 |
| Branching | 53, 587 | | | Forest edge | 207 |
| bZIP DNA-binding domain | 315 | D | | Fruit development | 59 |
| | | Daylength | 271 | Fruit ripening | 133 |
| C | | Defense | 133 | FT | 277 |
| C4 photosynthesis | 333 | Dehydration | 345 | | |
| Calcium | 179 | Determinate inflorescence | 289 | G | |
| Callus | 261 | Development | 299 | Gap | 459 |
| <i>Camellia japonica</i> | 421 | Developmental genes | 93 | GDP dissociation inhibitor | 257 |
| <i>Camellia ptilophylla</i> | 599 | Developmental genetics | 113 | Gene evolution | 333 |
| Carpel development | 295 | <i>Dictyostelium discoideum</i> | 93 | Gene expression | |
| Caryophyllaceae | 25 | | | | |

1, 59, 333, 345, 363, 565	Leaf peroxisomes	329	Organogenesis	307
Generative cell	Legume seed	1	<i>Oryza sativa</i>	591
Genetic diversity	Light	167	<i>Oryza sativa</i> L.	523
Genetic markers	Linkage map	383	Osmotic potential	373
Genetic structure	Low temperature	345	Ozone	471
Germination				
Glucanase	M		P	
Glucosyltransferase	M phase	243	Paraxonemal body	431
Glycinebetaine	MADS-box genes	233	Pattern formation	233
Glyoxysomes	Major intrinsic protein	411	Pectic polysaccharide	179
Golgi vesicle component	Male sterility	591	Peptidyl growth factor	453
Gravimorphism	<i>Mallotus japonicus</i>	459	Peroxidase	97
Gravitropism	Mannopolysaccharide	531	<i>Persicaria japonica</i>	547
Gravity	MAP kinase	339	Petals	25
Growth	MAPKKK	243	Phase separation of membrane lipids	121
Growth-induced water potential	Mechanism of oxidation of dopa	97, 487	Phenology	207
GTPase cycle			Phenoxyl radicals	97
Gynoecium	Mesocotyl	73	Phosphoenolpyruvate carboxylase	333
H	Mesophyll cell protoplasts	487	Phosphorylation	363
<i>Heteropappus</i>	Methoxybenzylglutamine [<i>N</i> ⁵ -(4-Methoxyphenyl)methyl-L-glutamine]	541	Photobiont	191
Heterostyly	Microbeam	587	Photoinhibition	121
High salinity	Microfilament	53	Photoperiod	271
Histidine kinase	Microfilaments	389	Photoperiod response	591
Histone genes	Microgravity	463	Photosynthesis	101, 121, 207
Homeotic genes	Micropropagation	65	Photosystem I	101
<i>Hordeum vulgare</i> L.	Microtubule	53	Photosystem II	101
<i>Hydrilla verticillata</i>	Microtubules	389, 587	Physiological function	363
Hydroxycinnamic acid esters	<i>Miyamayomena</i>	217	Phytochrome	267
Hydroxycinnamic acids	Molecular breeding	1	Phytosulfokine	453
<i>Hymenaspium</i>	Molecular grafting	159	<i>PINOID</i>	295
Hyphae	Molecular phylogeny	441	<i>Pinus pumila</i>	7
I	Monoecy	581	Pioneer tree	459
IAA	<i>Monotropa uniflora</i>	595	Placentation	573
Immunocytochemistry	<i>Monotropastrum humile</i>	595	Plant-virus interaction	323
<i>in situ</i> hybridization	Morphological nature	225	Plasticity	557
Inflorescence development	mRNA differential display	93	Plastid	481
Inhibition	Multi-enzyme phenotype (MEP)	581	Polarity	113
Interval mapping	Mutant	113, 329, 407	Pollen	45
Intraspecific variation	myb transcription factor	315	Pollen calendar	501
Isolectins			Pollen limitation	547
J	N		Pollen tube wall formation	421
Japanese forest tree species	NaCl stress	411	Pollen-stigma adhesion	299
Jasmonate	Natural layering	7	Pollinator composition	199
K	Natural population	547	Polyacetylated anthocyanin	213
<i>Kalimeris</i>	<i>Nicotiana tabacum</i> SR-1	45	Polymerase chain reaction	565
Karyotype	Nocturnal scent emission	199	Polyploidy	581
Kinesin-like protein	Non-arboreal pollen	501	Polysaccharides	191
<i>Kingdonia</i>	Nonsense mutation	87	Population	17
L	Nuclear envelope	399	Post-transcriptional control	363
Laser microdissection	Nuclear migration	587	Pressure probe	373
Late-flowering genes	Nuclear plasticity	389	Primordia	307
Lateral root	Nucleolus	399	Programmed cell death	253
Lazy	Nucleus	389	Proliferation	307
Leaf	Nutritional quality	1	Promoter	481
Leaf growth	O		Protein phosphatase 2C	339
Leaf morphogenesis	Obdiplostemony	573	Protein-protein interaction	363
	Oct motif	247	Protonema (fern)	53
	ω -3 Fatty acid desaturase	87, 481	Pseudodiplostemony	25
	Optical trap	399	Psychrometer	373
			Pterins	431

Pto Kinase	353	Soil acidification	471	Turgor	373
Purine alkaloid metabolism	599	Somatic embryogenesis	65		
Pyruvate orthophosphate dikinase	333	Southern hybridization	565	U	
Q		Space Shuttle	463	Ultrastructural modification	191
QTL	383	Spaceflight hardware	463	Understory shrub	207
R		Spatial structure	547		
Rab/Ypt family	257	<i>SPATULA</i>	295	V	
<i>rbcL</i>	557	Speciation	383	Vacuolar peroxidase	487
Receptor	261	Sphingophilous flowers	199	Vacuole	253
Reductive trends	25	Squash (<i>Cucurbita</i>)	541	Variation	225
Reproduction	17, 299	Starch synthesis	59	Vegetative coll	45
RFLPs	217	Statolith	463	Venation	225
Rhamnogalacturonan II	179	<i>Stegnogramma pozoi</i> subsp. <i>mollis-</i>		Vesicular traffic	257
Root hair development	315	<i>sima</i>	557	<i>Vicia faba</i>	487
rRAN	45	Stigma	431		
S		Stress	339	W	
S phase-specific expression	247	Stress response	345	Water	167
Salt tolerance	357, 411	Sugar sensing	323	Water channel protein	411
Sampling	17	Systematic implication	225	Water potential	373
3, 4-Dihydroxyphenylalanine (dopa)	97	T		Wild oats	73
Saprophytes	595	Telo-centrics	509	Wounding	481
Scutellum	73	Temperature	595		
Secondary succession	459	<i>TERMINAL FLOWER 1</i>	289	X	
Secretion	531	Thelypteridaceae	557	Xylem sap	541
Seed production	547	Theobromine	599	Xyloglucan	159
Seed storage protein	1	Tip growth	531	Xyloglucan related protein (XRP)	159
<i>Senecio</i> × <i>hybridus</i>	213	Tissue culture	65		
Shoot	261	Tobacco	243, 289	Y	
Signal transduction	339, 345	Tracheary element differentiation	253	Yeast genetics	257
Signal transduction	353	Transcription	363	Yunnan Province	495
Simulated acid rain	471	Transcription factor	363		
Small subunits	101	Transcriptional regulation	247	Z	
Snapdragon	113	Transformation	1, 565	<i>Zinnia elegans</i>	253
		Transformation of microbodies	329	Zygote development	93
		Transportation	133		

Acknowledgement

The Editorial Board is grateful to the reviewers listed below for their cooperation in reviewing manuscripts to the Journal of Plant Research, Vol. 111, 1998.

Ackerly, David
Adachi, Naoki
Adachi, Taizi
Adam, Gunter
Ashihara, Hiroshi
Doonan, John
Fujii, Noriyuki
Fujiwara, Toru
Fukuda, Hiroo
Hara, Noboru
Hasunuma, Kohji
Hirano, Hiroyuki
Hoson, Takayuki
Ichimura, Terunobu
Iino, Moritoshi
Imaichi, Ryoko
Inoue, Yasunori
Inouye, David W.
Ito, Motomi
Iwatsuki, Kunio
Jenneth, Sasse M.
Kadota, Akeo
Kamisaka, Seiichiro
Kanayama, Yoshinori
Kato, Hideyasu
Kato, Masahiro
Kawai, Hiroshi
Kiyosue, Tomohiro
Knight, Celie D.
Kobayashi, Hirokazu

Kojima, Mineo
Kondo, Katsuhiko
Kosuge, Keiko
Kurita, Shiro
Lamparter, Tilman
Maeda, Yasuo
Minaka, Nobuhiro
Minamikawa, Takao
Mineyuki, Yoshinobu
Morikawa, Hiromichi
Nagamasu, Hidetoshi
Nagata, Toshiyuki
Naito, Satoshi
Nishida, Ikuro
Noguchi, Tetsuko
Obokata, Jun-ichi
Ochiai, Hiroshi
Ogihara, Yasunari
Oginuma, Kazuo
Ohmori, Masayuki
Ono, Mikio
Ozeki, Yoshihiro
Ranker, Tom A.
Saito, Tsutomu
Sakurai, Naoki
Sato, Naoki
Satoh, Shinobu
Sekine, Masami
Serizawa, Shunsuke
Shibaike, Hiroyuki

Shiraishi, Susumu
Shimmen, Teruo
Sonobe, Seiji
Sugiyama, Munetaka
Sumida, Akihiro
Suzuki, Mitsuo
Syono, Kunihiko
Takabe, Tetsuko
Takahashi, Akira
Takahashi, Hideyuki
Takaso, Tokushiro
Takeba, Go
Takeda, Jyunko
Takeuchi, Yuichi
Terabayash, Susumu
Tobe, Hiroshi
Tsumura, Yoshihiko
Ueda, Kunihiko
Wakabayash, Michio
Watanabe, Kuniaki
Watanabe, Masakatsu
Watanabe, Mikio
Watanabe, Akira
Yahara, Tetsukazu
Yamamoto, Kotaro T.
Yamaoka, Naoto
Yoshikawa, Takafumi
Yoshitama, Kunijiro
Yumura, Shigehiko